Building sustainable and effective assurance of learning processes in a changing higher education environment

ABSTRACT

In a study of assuring learning in Australian Business Schools, 25 Teaching and Learning Associate Deans were interviewed to identify current issues in developing and measuring the quality of teaching and learning outcomes. Results indicate that for most institutions developing a perspective on graduate attributes and mapping assessments to measure outcomes across an entire program required knowledge creation and the building of new inclusive processes. Common elements of effective practice, namely those which offered consistently superior outcomes, included: inclusive processes; embedded graduate attributes throughout a program; alongside consistent and appropriate assessment. Results indicate that assurance of learning processes are proliferating nationally while quality of teaching and learning outcomes and in the processes for assuring it is increasing as a result.

Keywords: curriculum development; learning; business education; accreditation.

BACKGROUND

In Europe, the USA and Australia there has been a major shift towards qualifications frameworks in higher education to provide reference points for student performance at various levels of study and to benchmark the quality of learning. Direct measures for assuring the learning outcomes of students have become a substantial requirement in responding to the quality agenda in higher education. Oliver (2011: 13) notes that governments, the professions, business and the wider community are increasingly requiring assurance of learning (AoL) outcomes contingent upon qualification levels. In contrast to indirect measures, such as student appraisals of their course experience, and industry feedback, direct measures of assuring learning outcomes involve the measurement of the learning outcomes realised by students to demonstrate their achievement of a program's explicit learning goals.

These outcomes of student learning are commonly referred to as graduate outcomes and include knowledge outcomes and generic outcomes, sometimes referred to as 'soft skills' (Freeman, Hancock, Simpson & Sykes 2008). Taken together the outcomes are termed graduate attributes (Oliver 2011). Barrie, Hughes and Smith (2009:1) define graduate attributes as "descriptions of the core abilities and values a university community agrees all its graduates should develop as a result of successfully completing their university studies". Graduate attributes also commonly reflect the professional

capabilities required of students, packaging academic learning into a professional context and are frequently used to add authenticity to the educational experience.

Graduate attributes are framed in many different ways and in Australia they can be related to the Australian Qualifications Framework (AQF). The AQF objectives for assuring learning are to increase student mobility and employability, build confidence in qualifications, support lifelong learning and underpin quality assurance and regulation across all sectors of education (Australian Qualifications Framework Council 2011). First introduced in 1995, the AQF was updated in 2011 and reaffirmed as the national qualifications policy. Whereas previous models of quality evaluation focussed on the appropriateness of policies, procedures and outcomes for a university, the current focus of quality measurement is on the standards of learning outcomes themselves. Standards are defined as "the explicit levels of attainment required of and achieved by students and graduates, individually and collectively, in defined areas of knowledge and skills" (Tertiary Education Quality and Standards Agency 2011: 3). It is within this context that assurance of learning has taken on an added saliency. The current research aimed to identify the issues currently being negotiated in building effective processes and the best practice elements of design. This paper presents the various processes of design and mapping of learning outcomes and overviews how specific programs of learning in Australian Universities have approached the collection and review of supporting data and tools.

Assuring Learning

The Organisation for Economic Co-operation and Development (OECD) has previously acknowledged the lack of reliable data on the substantive outcomes of higher learning. The few studies that do exist are nationally focused with available rankings of institutions reflecting neither the quality of teaching and learning, nor the diversity of institutions (OECD 2011). In Australia, the systematic direct measurement of value-added graduate attainment in higher education is still relatively immature (Taylor et al., 2009). Recent literature has begun to discuss and debate AoL, particularly in the business and management education. Zhu and McFarland (2005) identified AoL as

a conceptual framework that links to a program's educational goals and inputs from external and internal constituents. They suggest there are two main steps in setting up AoL, firstly to identify what learning needs to be assessed and to what degree; and secondly to determine how to measure and demonstrate the achievement of the learning goals. The Association to Advance Collegiate Schools of Business (AACSB), a global, non-profit membership organization of educational institutions, businesses, and other entities devoted to the advancement of management education (AACSB 2012), has been a key driver of AoL. AACSB embraced learning standards based on a requirement of a common body of knowledge for all undergraduate and graduate business majors prior to 1991 (Zocco 2011). According to AACSB the process approach to AoL involves a five step procedure including: 1. The definition of student learning goals and objectives; 2. Alignment of curricula with the adopted goals; 3. Identification of instruments and measures to assess learning; 4. Collection, analysis and dissemination of assessment information; 5. Using assessment information for continuous improvement of the program curriculum including documentation that the assessment process is being carried out in a systematic ongoing basis.

In response to education, accreditation and industry demands Australian universities are increasingly developing a strategic approach to support the embedding of their programs' graduate attributes into the curriculum (Barrie, Smith, Hughes & Thomson 2009: 6). However, research on "mapping" these attributes throughout the curriculum in higher education is scant (Oliver 2010). Much of the existing literature notes the usefulness of curriculum mapping but mainly focuses on the limitations and challenges of mapping, with suggestions for overcoming these barriers using a specific methodology for curriculum mapping. Freeman et al. (2008) suggested curriculum mapping assists to identify the gaps within the program to reduce confusion and increase coherence in the curriculum. Biggs (2003), identified its value in monitoring course diversity as well as providing an opportunity to align the graduate attributes, course objectives and assessment.

Gathering data and analysing student performance in relation to each learning objective and then acting on these results, is a key step in the AoL process. The challenges associated with collecting evidence of student achievement are further exacerbated by the need for efficiency (Freeman 2010).

To assist with the process, assessment rubrics are commonly used to collect data on students' capability (Yorke 1998). Rubrics include marking criteria, often in matrix form, that articulate explicit levels of criteria aligned with assessment outcomes and are intended to make expectations transparent (Mansilla, Duraisingh, Wolfe & Haynes 2009). However, rubrics are not withouttheir critics , and it has been noted that a sound university education cannot be easily reduced to a 'tick list' of skills or competencies, many of which are ill-defined, overlapping, and difficult to measure (Hager 2006).

The final component of an AoL process is using the information gathered for improvement (AACSB 2007: 60). Martell (2007: 192) termed this process as 'closing the loop', and suggested "it is the raison d'etre for assessing student learning" A survey of 179 American business schools, which were either AACSB accredited or seeking accreditation, identified much confusion about how to best undertake a continuous improvement process (Martell 2007). In a similar vein, previous Australian research found that many business schools were grappling with just how to systematically develop and assess the attainment of graduate attributes (Taylor et al. 2009). To assess if the situation has changed in the Australian higher education landscape, the purpose of the current study was to identify processes of continuous improvement in assurance of learning currently being undertaken by Business Schools.

METHOD

The preliminary nature of the research allowed us to investigate the broad issues of assuring learning in Australian universities through an exploratory research design. As a collaborative partnership between representatives from five universities, we chose to collect the required information in depth interviews with the Associate Deans Teaching and Learning (ADTL's) within Business Schools across Australia. Depth interviews are relatively unstructured or semi-structured, extensive interviews often used in the primary stages of the research process. Depth interviews differ from traditional interviews in that they encourage discussion on an undisguised subject area without influencing the direction of that discussion except through probe questions intended to encourage further elaboration (Zikmund 2003).

The ADTLs provided a management viewpoint, discussing their involvement in both the strategic

development of assurance of learning processes and in operational issues of implementing the process. Assurance of learning has been a keen focus in the business discipline over the past few years, predominately (but not entirely) through the encouragement and requirements of accrediting bodies. Semi-structured telephone interviews using guiding questions (see appendix 1 I) developed through a literature search, and moderated by advisors to the research project, were conducted by an experienced interviewer. Each interview lasted approximately forty-five minutes and was recorded and transcribed verbatim. Participation was voluntary and responses were treated as anonymous and results confidential. The sampling frame was all Australian Business Schools' ADTLs (n = 39). Twenty five (25) members of the ABDC T&L Council volunteered to be interviewed for this study resulting in a response rate of 64%. The distribution of these ADTLs included: 6 GO8 (Group of 8) institutions; 4 ATN (Australian Technology Network) institutions; 6 regional universities and 9 others, located across each of the seven states of Australia.

ANALYSIS

The interviews were analysed using content analysis. Content analysis allows the researcher to analyse large volumes of data in a systematic way, to discover and describe the issues of focal importance to the interview subjects (Krippendorf 2004). Two types of reliability are pertinent to content analysis: stability and reproducibility. Stability relies on the researcher consistently coding the text in the same way, over time. Reproducibility relies on different human coders consistently classifying the text. We used Leximancer and NVIVO 9 to analyse the data. The use of computer-aided textual analysis allows for systematic, comprehensive and exhaustive analysis (Gephart 2004). In the preliminary analysis with Leximancer, the resulting concept maps were examined for overall patterns and proximity followed by more detailed analysis of concept content (via scrutiny of the thesaurus for each concept) and co-occurrence. Once a map was generated, the concepts were assessed for meaning by looking at the thesaurus behind each concept, and by checking the text evidence behind each concept. We also looked for the absence of meaningful concepts, going to the list of "frequent words" found in the concept seed editing stage for the words that may draw out more meaningful information from the text. Once a meaningful and stable map was established, it became the starting point for further

interpretation. Drawing on Hsieh and Shannon's (2005) directed content analysis sections of the text were coded into the nine categories used in the Leximancer analysis of the research questions. The text within these categories was coded through an inductive process of identifying sub-categories, in recognition of the importance of homogenous and distinct categorisations as suggested by Lincoln and Guba (1985). Over the course of the coding, the labels and definitions of the different categories often changed, reflecting the meaning that additional text brought (Miles & Huberman 1994). From this stage the raw text for each category was paraphrased into short summaries to provide depth to the results from the Leximancer analysis. Complementing the exploration phase of the Leximancer automated analysis of the text; an analysis of the interviews was undertaken by a researcher using NVIVO 9 software to validate the aforementioned categories.

FINDINGS

All respondents were extremely positive about the benefits of AoL, identifying it as basic and foundational to the continuous improvement of programs and to the provision of evidence of students' development of graduate attributes. One Associate Dean (T&L) concluded, *"continuous improvement of curriculum is something that academics are always striving for anyway*" (Interviewee V), reinforcing the perspective of the importance of assuring learning outside the pressure of governments or accreditation bodies. However, despite the pedagogical statements indicating the internal motivations of assuring of learning, a basic frequency count showed external accreditation agencies were seen as the primary drivers for assuring learning for the majority (92%) of the respondents.

Designing Learning Outcomes and Mapping the Curriculum

All respondents indicated that their schools had a mapping process in place for mapping of graduate attributes and assurance of learning. The responsibility for mapping the graduate attributes into the curriculum within a program varied. On the whole teaching staff had responsibility for identifying which subjects were most suitable to assure graduate attributes (64%); with faculty management (for example ADT&Ls, and/or Program Directors) taking the role in the other cases. The level of mapping was also found to vary, with 40% of respondents considering mapping to the subject itself as sufficient and the remaining noting that mapping should be to specific assessment tasks offered within the

subject. Of those respondents who mapped to assessments tasks, all but one were pursuing or already in possession of AACSB accreditation. A variety of tools were identified as assisting the mapping process but could be largely classified into two categories: MS Excel based spreadsheet instruments; and those specifically designed online course management systems.

A number of elements in mapping the curriculum were identified as critical for effective practice. The requirement of an inclusive process, namely the need for the curriculum mapping process to be inclusive of all staff in the program, was deemed as paramount for successful AoL. Examples of inclusive processes included: holding individual discussions with program coordinators; running workshops involving teaching staff; and facilitating group decision techniques that involved all participants. Some of the processes used were described by the interviewees:

> *The emphasis on a participatory process involved sitting down with subject coordinators and having them work through how the graduate attributes and program learning objectives fit into their subject. Using the Subject Overview Spreadsheet (SOS), subject coordinators collaborated in not only the mapping of attributes across the program, but identifying and resolving issues around the distribution and gaps in the curriculum. While the teaching and learning team facilitated the process and did some of the early work of entering details into SOS to hand back to the subject coordinators, the process centred on the involvement of academic staff.* (Interviewee A)

> *We held a number of workshops off-campus, where staff worked through charting the learning goals over the course of the program on butcher's paper. This included unit and program coordinators, heads of departments and the dean of learning and teaching. The process of refining the map was continuous, primarily taking place by email, but with additional yearly workshops to go over the process again to make sure the mapping reflects the way the unit is being delivered.* (Interviewee Q)

> *We engage in participatory mapping by email, sending out a spreadsheet with the attributes, which lecturers fill in for their individual units. The collaboration and negotiation occurs at the level of discipline groups who share out the assessment of the required attributes across the degree or major. A process of reflecting on the coverage of graduate attributes at the end of the semester also feeds into this.* (Interviewee M)

Further, the results indicated the importance of encouraging all stakeholders to take a program-wide view as a means for fostering change to the scaffolding of learning. This process was also key in ensuring the development aspect of the specific attributes across the entire program. Physically mapping the program outcomes often required the development of various spreadsheet records and it was important to successful embedding that these were shared with all stakeholders. Many schools noted that continuous improvement of the program was the ultimate goal.

> *Program directors are asked to code all unit objectives against program learning goals and outcomes. A FilemakerPro database is used to present how the program learning goals are distributed over the units. The mapping is updated every year, which feeds into a program review every five years.* (Interviewee C)

> *All programs map to five key learning goals. For majors within programs, goals are adapted to reflect discipline needs. Mapping was initially done in the core units, and then discipline staff were given the task of building on the core units and showing the sequential development of program goals across the units within the major. This required taking a view of the program as a whole and observing how units fit into the program in relation to attributes.* (Interviewee A)

> *Specially developed software (Subject Overview Spreadsheet) was used to present how unit level assessments fit in at a program and faculty level, using program and subject coordinator's own knowledge of the program. The presentation of this information through SOS made gaps and overlaps over the course of the program clear, and also identified how particular assessment types (multiple choice, essays, case-studies) were distributed over the course. Being able to present all this information seemed to be important in fostering a program-wide view.* (Interviewee A)

> *We build levels of attributes into the process, along individual assessment items. Learning outcomes and assessments are rated in terms of the level of the graduate attribute demonstrated: 1) introductory; 2) intermediate; 3) graduate. These levels are used to show that the relevant attribute has been developed over the course of the program.* (Interviewee L)

Other elements of effective practice in mapping the curriculum included facilitating student and staff awareness. For students, awareness creation assisted to provide a framework for measuring progression and was used to encourage active participation in the learning process. For staff, awareness raising was one stage in fostering engagement in the process. Capstone subjects, compulsory subjects offered in the final year of a degree program (Van Acker & Bailey 2011), were used as a way to emphasise the end point for skills development. Different approaches to awareness development were used, as described below:

> *The e-portfolio in the Bachelor of Business is built around the graduate attributes. Students are prompted to find examples of how they have demonstrated each of the attributes through their course work and extracurricular experiences. This served to not only highlight the skills and attributes they had developed over the course of their studies for themselves and future employers, but helped to identify areas for further development.* (Interviewee A)

> *Graduate attributes are mapped against an employability skills framework. Students are asked to record their past extracurricular learning and previous studies, which are then combined with their current studies to produce a Career Point Index in line with the graduate attributes. Opportunities are then delivered in line with building up aspects of students' Career Point Index through extracurricular learning activities. Students are encouraged from early in their program to start planning and developing their Career Point Index aligned to their desired career path.* (Interviewee J)

> *Capstone units are mapped as a point of assessment for particular learning objectives that have been developed through tasks earlier in the degree. The results of assessments related to that outcome are only of interest if there is a problem with demonstrating the graduate level of the attribute at the capstone. The review process then looks all points where the attribute is developed.* (Interviewee H)

> *Each major has a capstone unit. All goals are introduced in the core units, with the further development of the goals in the major and outcomes are typically measured in a capstone unit.* (Interviewee U)

Data Collection

While mapping where the teaching of specific knowledge and skills occurred within a program was identified as a common practice by all respondents, only ten of the respondents indicated that they were currently collecting data from student assessments for use in an AoL process. Despite the limited number of schools collecting data, we found a variety of approaches to data gathering. Data were collected from multiple subjects or units across programs to obtain measures of students' achievement throughout the program. Approximately half of respondents collecting data noted that capstone subjects were used to collect learning outcomes data. Only one school used a standardised testing method where students were required to undertake an examination independent of their individual subjects within the program.

Different practices were also identified for grading student assessment. Some respondents identified that assessment pieces were marked by the academics responsible for teaching the subject, while others used independent markers to assess the graduate attribute elements of the assessment task. The type of data collected also varied with some institutions collecting overall marks for the specifically mapped assignment and others collecting the marks for the specific criteria within the assessment (i.e. the specific mark attached to the graduate attribute). The interviewees noted the challenges associated with ensuring consistent criteria in assessing attributes across programs using clearly articulated and meaningful criteria. Embedding these into the curriculum to normalise the practice and to encourage both engagement and the perceived value of the practice was identified as an important part of the process. Software solutions assisted the practice of collecting data and reduced the workload on teaching academics.

> *Consistent criteria for attributes are embedded into assessments using ReView [software program]. For each program learning objective an assessment rubric breaks the objective*

> *down into two or three criteria, with markers indicating the student's level of achievement on each of these. Because all students in the faculty are marked against the same criteria there are opportunities to benchmark across programs, and to have fairly high level discussion and feedback on the suitability of the rubrics at the subject and program level. Subject coordinators integrate the rubrics for program learning outcomes into assessment tasks; the results are then drawn on to report on particular learning outcomes. This is done through ReView software, allowing for all marking to be done online.* (Interviewee A)

> *[We] developed generic rubrics through a collaborative and consultative process for each undergraduate and postgraduate learning goal. The rubrics are useful in communicating to staff and students the criteria and performance standards expected for each learning goal. Discipline teams in majors were responsible for adapting the generic rubrics to meet discipline needs. This was seen as important for staff engagement. We embed assurance of learning into student assessments using ReView, with student learning typically assessed in a capstone unit or other unit at the end of the program. In ReView, assessments are marked with standard criteria which are linked to a learning goal. The overall performance for each learning goal is an aggregate of all of the student results from that learning goal across all linked assessment criteria. Embedding assurance of learning into routine activity and systems was seen as essential to build assurance of learning into the culture of the university, having all staff engaged in and reflecting on how units and programs develop the learning outcomes. [We] developed our own software called ALEC "Assurance of Learning Embedded in Courses" (which presents data in much the same way as ReView), with the optional entry of marks online, the application of customised rubrics and the presentation of performance on graduate attributes within the units.* (Interviewee Q)

> *[We] use a program called STUNNER, which breaks assessments into high, medium, low and produces a report for each subject and eventually the program on whether a learning objective was achieved.* (Interviewee U)

External evaluation or examination was seen as a core requirement for the entire assurance of learning process in order to benchmark outcomes across institutions. The use of multiple measures of AoL to enrich the discussion and interpretation of the data collected were consistently identified as a necessary component of an effective AoL practise.

Continuous Improvement

Continuous improvement involves using the student learning data collected to inform changes in the program; the teaching and learning process; or the goals themselves to better align all the aspects of the program. It was clear from the responses of the ADTLs that the process known as 'closing the loop' is the least developed area of the AoL process in Australian Business Schools. Those institutions with a formalised reporting process encouraged broad stakeholder engagement with this aspect of the

process and beginning to build an expectation of critical reflection at both unit and program levels with a view to substantive change.

> *We have quite a de-centralised structure of responsibility for responding to measurement data. The aggregated results get sent back to the unit coordinator and to the discipline representative for assurance of learning. They are asked to comment on the data and make suggestions for changes at the unit level, then at the program level.* (Interviewee B)

> *We work from program reports which are reviewed by a committee including the teaching and learning team, lecturers whose units are involved in the measurement, the discipline chair, and the instructional designer.* (Interviewee D)

> *Discussing AOL results was useful in reviewing program learning goals and the overlap between them. These discussions represent a willingness to critically evaluate the AOL process and ensure they are providing valid information with which to inform program decision-making.* (Interviewee C)

> *We have a process of working back from where learning is assessed to examine how a particular learning outcome has been introduced and developed over the program. Closing the loop at the program level means that there is recognition of the places in the program where changes could be made.* (Interviewee B)

One interviewee identified that keeping this type of program change manageable was an important factor for their team's continued engagement with the process.

> *There is an emphasis on the importance of the discipline teams to come up with one point of change that would make the most significant difference. Often additional changes were identified and implemented but the focus was on identifying the one change that would have most impact on improving student learning outcomes against the program goals.* (Interviewee H)

DISCUSSION AND CONCLUSION

This study sought to identify robust AoL processes currently used in business schools and categorise the practices that were deemed effective. The results suggest that AoL is supported in Australian business schools, both philosophically and processually, although some processes are more mature than others. Philosophical support is a critical element, and this dimension has been discussed in more depth in an earlier paper emanating from this project (Lawson et al. 2011). In terms of the processes, it is clear from the data collected for this study that processes for assuring learning outcomes are rapidly developing within externally accredited schools and in those seeking international accreditation such as AACSB and EQUIS. These processes were by no means standardised, but all of the business schools participating in this research indicated that they were progressing an AoL agenda.

We found support for both Freeman (2008) and Biggs' (2003) assertions that mapping the curriculum increases coherence in the curriculum and assists in aligning the graduate attributes, course objectives and assessment. An important design feature of effective practices was the process of inclusion of academics into the design process. Inclusion was achieved in many ways, including individual and/or group meetings, and online opportunities for heightening access such as newsletters, email and blogs. A wide variety of tools and approaches were developed to aid the AoL process.

An equally important element of effective practice was the process of embedding graduate attributes and appropriate assessment throughout the entire program to scaffold student development. The use of assessment rubrics was key in collecting data on students' capability supporting Yorke's (1998) and Mansilla, Duraisingh, Wolfe and Haynes' (2009) conclusions. Notably, the use of standardised rubrics throughout the program was identified as vital to ensure not only reliability of the data gathered but also the continued engagement of those undertaking the data collection and its analysis. Specific software programs were identified as beneficial for supporting both the process and the academics involved. This technology support was also recognised as beneficial for ensuring excellence in feedback to students on their progress against each of the programs' graduate attributes. While numerous processes are under way in the name of assurance of learning, much work is still needed to use data gathered develop a continuous improvement approach in programs. While there is support for Martell's (2007) 'closing the loop', as a raison d'etre for assessing student learning, currently most schools are still in the initial development phase of concentrating on establishing a stable process, with critical analysis of their results yet to be included. It is recommended that future research maps the progress of the assurance of learning agenda. Furthermore, measurement of the impact of these processes on student learning outcomes should be paramount in the teaching and learning research agenda, as presently there is a distinct lack of empirical evidence for assurance of learning.

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Appendix 1

Guiding Questions

1. Do you have defined graduate outcomes/graduate attributes for each of the degree programs in your school at your university?
2. Where have these defined graduate outcomes originated from, eg professional/university/program?
3. How do you assure that students in your programs achieve your defined graduate outcomes?
4. How have you implemented this process with key stakeholders ? (training/communication/student awareness; professional and academic staff)
5. What challenges have you faced? How did you overcome them/ what are the lessons learnt? Have you any current challenges? How do you propose to overcome them? Can you foresee any future challenges? How would you like to further develop your process?
6. Do you have any evidence/examples/tools that you would be happy to share with us?
7. Are there any other comments you would like to make? Is there anyone else that I should talk to in regard to this?

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